

SEQUENCE LISTING

<110> BIOPROTEIN TECHNOLOGIES
 COHEN Jean, deceased
 SOLER Eric
 HOUDEBINE Louis-Marie
 SCHWARTZ-CORNIL Isabelle
 FOURGEUX Cynthia
 PAREZ Nathalie
 GARBARG-CHENON Antoine

<120> PREPARATION OF RECOMBINANT ROTAVIRUS PROTEINS IN MILK OF
 TRANSGENIC NON-HUMAN MAMMALS

<130> D21684

<140> PCT/IB2005/000896
<141> 2005-03-04

<150> EP 04/290 589
<151> 2004-03-04

<160> 23

<170> PatentIn version 3.3

<210> 1
<211> 2643
<212> DNA
<213> rotavirus

<220>

<223> VP2 strain RF open reading frame

<400> 1		
atggcgtaca ggaaacgtgg agcgcgcccgt	gaggcgaata taaaataataa tgaccgaatg	60
caagagaaag atgacgagaa acaagatcaa aacaatagaa	tgcagtgtc tgataaaagta	120
cttccaaaga aagagaaagt cgtaaccgac agtcaagaag	aaattaaaat tgctgatgaa	180
gtgaagaaat cgacgaaaga agaatctaaa caattgcttg	aagtttgaa aacaaaagaa	240
gagcaccaaa aagagataca atatgaaatt ttgaaaaaaaa	cgataccaaac atttgaacca	300
aaagagtcaa tattgaaaaa attggaggat atcaaaccgg	aacaagcgaa gaagcagact	360
aagctattta gaatatttga accgagacag ctaccaattt	atagagcgaa tggtaaaaaa	420
gagttgcgta acagatggta ttggaagctg aagaaaagata	ctttaccaga tggagattat	480
gatgttagag aatactttct aaatttgtat gatcaggttc	ttactgaaat gccagattat	540
ttactattaa aagatatggc agttaaaaat aaaaattcga	gagatgccgg taaagttgtt	600
gattctgaaa cagcaagtat ctgtgatgct atatttcaag	atgagggaaac agaagggtca	660
gtgagacgat tcattgcgga gatgagacag cgcgtacaag	ctgacagaaa cgttgtcaat	720
tacccatcaa tattgcatcc aatagattac gctttaatg	ttactttttt gcaacaccaa	780
ttagttgaac cattgataa tggatataata ttcaattaca	ttcctgaaag gataaggaat	840
gacgttaact atataacttaa tatggacaga aatctgccat	caacagctag atatataaga	900
cctaatttac tacaagacag actgaatttg catgacaatt	ttgaatcctt gtgggataca	960
ataacaactt caaacttat tctggcaaga tcggtagtac	cagattaaa ggaatttagtt	1020
tcaaccgaag cgcaaattca aaaaatgtca caagacttgc	aactagaagc attaacaata	1080
cagtcaaaaa cgcagttttt aacaggtata aactcacaag	cagcaaatga ctgtttcaaa	1140
actctgattt cagcaatgtt aagtcaacga accatgtcgc	ttgatttcgt gactacaaat	1200
tatatgtcat taatttcagg catgtggta ctaactgttag	tgccaaatga catgttcata	1260
aggaaatcat tggttgcatt tcaactggct atagtgaata	caataatata tccagcggtc	1320
ggaatgcaac gaatgcatta tagaaacgga gaccacaaa	gaccattca gatagcagaa	1380
caacaaatac aaaatttca agtagcgaat tggctgcatt	ttgtcaataa caatcaattt	1440

agacaatgtt ttattgtatgg tgtattgaat caggtgctga atgacaatat tagaaatgg
catgtcatta atcaattgtt ggaagcttta atgcacaactat caccgacaaca gtttccaaca
atgcctgtt attataagag gtcaatccag cgttgcataat tattgtctatc aaataggctt
ggtaatttag ttgatTTAAC taggttatta gcttacaact acgaaacact aatggcatgt
gttacgatga atatgcaaca tgTTTCAACT ttgacaacag aaaaattaca gttAACTTC
gtcacatcgT ttgttatGCT tattggaaat gcaaccgtt tacCCAGCCC gcagacattg
tttcaCTatt ataATgttAA tgTTAATTtTt cattCAAATTt ataATgAAAG aATTAATGAT
gcagtggcca taataactgg agctaataAGA ctaaattttt atcagaaaaa gatgaaggca
atagttGAAG attttttAAA aagattacat attttcgtatg tagcttagatg tccagatgt
caaATgtata gattaaggga tagactacga ctattgccc tagaaAGtAAG acgattggat
atTTTtaatt tgataactgtat gaacatggat cagatagaAC ggcgtatcaga taAAATTGCG
caagggttta ttattgcgtt ccgcgatATG caattggaaa gagacgaaat gtatggctac
gtgaatatag cttagAAATTt agatgggttc cagcaAAATAA accttagaaga attgtatgaga
acaggcgatt atgcacAAAt aactaacatg ctcttgaata atcaaccagt agcgctatTT
ggagctcttc cattttgttac agactcgTca gtcataCTGT tgatAGCGAA cgTTGACGCT
acagTTTtg cccaaatagt taaattacgg aaagttgata ccttggAAACC aatattgtat
aaaataAAatt cagattcgaa tgactttac ctatTTGCA actatgattg ggtgcctact
tcaaccacAA aagtataataa gcaagttcca cagcaatttG atttcagaaa ttGATGcat
atgttaacat caaatcttac ttTcaCTGTT tactctgtatc tgcttgcatt cgtatcggcc
gatacagtag aacctataAA tgcaGTTGCA tttgataata tgcgcatcat gaacgagttg
taa

```
<210> 2
<211> 2643
<212> DNA
<213> Artificial sequence
```

<220>
<223> VP2 strain RF open reading frame, modified sequence

gtcacatcg	tgtgtatgct	tattggaaat	gcaaccgtta	tacccagccc	gcagaçattg	1800
tttcactatt	ataatgttaa	tgttaatttt	cattcaaatt	ataatgaaag	aattaatgat	1860
gcagtggcca	taataactgg	agctaataaga	ctaaatttat	atcagaaaaa	gatgaaggca	1920
atagttgaag	atttttaaa	aagattacat	atttcgatg	tagctagagt	tccagatgat	1980
caaatgtata	gattaaggga	tagactacga	ctattgccag	tagaagtaag	acgattggat	2040
attttaatt	tgatactgat	gaacatggat	cagatagaac	gcfgcatcaga	taaaattgcf	2100
caagggttta	ttattgcgt	ccgcgatatg	caattggaaa	gagacgaaat	gtatggctac	2160
gtgaatatag	ctagaaattt	agatgggtc	cagcaaataa	acctagaaga	attgatgaga	2220
acaggcgatt	atgcacaaat	aactaacatg	ctcttgaata	atcaaccagt	agcgcttagt	2280
ggagctttc	catttgttac	agactcgta	gtcatatcg	tgatagcgaa	cgttgacgct	2340
acagttttg	cccaaatagt	taaattacgg	aaagttgata	ccttgaacc	aatattgtat	2400
aaaataaatt	cagattcgaa	tgactttac	ctagttgcca	actatgattt	ggtgcctact	2460
tcaaccacaa	aagtatataa	gcaagttcca	cagcaattt	atttcagaaa	ttcgatgcat	2520
atgttaacat	caaatacttac	tttcaactgtt	tactctgatc	tgcttgatt	cgtatcggcc	2580
gatacagtag	aacctataaa	tgcagttgca	tttgataata	tgcgcatcat	gaacgagttg	2640
taa						2643

<210> 3
<211> 2643
<212> DNA
<213> Artificial sequence

<220>
<223> VP2 strain RF open reading frame, modified sequence

<400> 3						
atggcgtaca	ggaaacgtgg	agcgcgcccgt	gaggcgaata	taaataataa	tgaccgaatg	60
caagagaaag	atgacgagaa	acaagatcaa	aacaatagaa	tgcagttgtc	tgataaaagta	120
ctttcaaaga	aagagagaat	cgttaaccgac	agtcagaagaa	aaattaaaat	tgctgatgaa	180
gtgaagaaat	cgacgaaaga	agaatctaaa	caattgcttg	aagtttgaa	aacaaaagaa	240
gagcacaaaa	aagagataca	atatgaaattt	ttgcaaaaaaa	cgataccaaac	atttgaacca	300
aaagagtcaa	tattgaaaaaa	attggaggat	atcaaaccgg	aacaagcgaa	gaagcagact	360
aagcttattt	aatatttga	accgagacag	ctaccaattt	atagagcgaa	tggtgaaaaaa	420
gagttgcgt	acagatggta	ttggaagctg	aagaaagata	ctttaccaga	tggagattat	480
gatgttagag	aatactttct	aaatttgcgt	gatcaggttc	ttactgaaat	gccagattat	540
ctccctcctga	aagatatggc	agttgaaaaat	aagaattcga	gagatgccgg	taaagttgtt	600
gattctgaaa	cagcaagtat	ctgtgatgct	atatttcaag	atgagggaaac	agaaggtgca	660
gtgagacgt	tcattgcgga	gatgagacag	cgcgtacaag	ctgacagaaa	cgttgtcaat	720
tacccatcaa	tattgcattcc	aatagattac	gcttttaatg	agtattttt	gcaacaccaa	780
ttagttgaac	cattgaataa	tgtatataata	ttcaatttaca	ttcctgaaag	gataaggaat	840
gacgttaact	atatacttaa	tatggacaa	aatctgccc	caacagctag	atataataaga	900
cctaattttac	tacaagacag	actgaattt	catgacaatt	ttgaatcctt	gtgggataca	960
ataacaactt	caaactatat	tctggcaaga	tcggtagtac	cagattaaa	ggaatttagtt	1020
tcaaccgaag	cgcaaattca	aaaaatgtca	caagacttgc	aactagaagc	attaacaata	1080
cagtcagaaa	cgcagtttt	aacaggtata	aactcacaag	cagcaatga	ctgtttcaaa	1140
actctgattt	cagcaatgtt	aagtcaacga	accatgtcgc	ttgatttcgt	gactacaat	1200
tatatgtcat	taatttcagg	catgtggta	ctaaactgtag	tgccaaatga	catgttcata	1260
agggaatcat	tggttgcatt	tcaactggct	atagtgaata	caataatata	tccagcgttc	1320
ggaatgcaac	gaatgcatta	tagaaacgga	gaccacaaa	gaccattca	gatagcagaa	1380
caacaaatac	aaaattttca	agtagcgaat	tggctgcatt	ttgtcaataa	caatcaattt	1440
agacaagtag	ttatttgcgt	tgtattgaaat	caggtgctga	atgacaatat	tagaaatgga	1500
catgtcatta	atcaattgtat	ggaagcttta	atgcaactat	cacgacaaca	gtttccaaca	1560
atgcctgtt	attataagag	gtcaatccag	cgtgaaat	tattgcatac	aataggctt	1620
ggtcaattag	ttgatttaac	tagtttata	gcttacaact	acgaaacact	aatggcatgt	1680
gttacgtga	atatacaaca	tgttcagact	ttgacaaacag	aaaaatttaca	gttaacttca	1740
gtcacatcg	tgtgtatgct	tattggaaat	gcaaccgtta	tacccagccc	gcagacattg	1800
tttcactatt	ataatgttaa	tgttaatttt	cattcaaatt	ataatgaaag	aattaatgat	1860
gcagtggcca	taataactgg	agctaataaga	ctaaatttat	atcagaaaaa	gatgaaggca	1920
atagttgaag	atttttaaa	aagattacat	atttcgatg	tagctagagt	tccagatgat	1980
caaatgtata	gattaaggga	tagactacga	ctattgccag	tagaagtaag	acgattggat	2040

attttaatt tgatactgat	gaacatggat	cagatagaac	gcgcacatcaga	taaaattgcg	2100	
caagggttta	ttattgcgta	ccgcgatatg	caattggaaa	gagacgaaat	gtatggctac	2160
gtgaatata	ctagaaattt	agatgggttc	cagcaaataa	acctagaaga	attgatgaga	2220
acaggcgatt	atgcacaat	aactaacatg	ctcttgaata	atcaaccagt	agcgctagtt	2280
ggagctttc	catttggta	agactcgtca	gtcatatcgt	tgatagcgaa	cgttgacgct	2340
acagtttttgc	cccaaata	tagttaacgg	aaagttgata	ccttgaacc	aatattgtat	2400
aaaataaaatt	cagattcgaa	tgacttttac	ctagttgcca	actatgattt	ggtcgcctact	2460
tcaaccacaa	aagtatataa	gcaagttcca	cagcaatttgc	atttcagaaa	ttcgatgcat	2520
atgttaacat	caaatcttac	tttcaactgtt	tactctgatc	tgcttgcatt	cgtatcggcc	2580
gatacagtag	aacctataaa	tgcagttgca	tttgataata	tgcgcatcat	gaacgagtttgc	2640
taa						2643

<210> 4
<211> 2643
<212> DNA
<213> Artificial sequence

<220>
<223> VP2 strain RF open reading frame, modified sequence

<400> 4						
atggcgtaca	ggaaacgtgg	agcgcgcgt	gaggcgaata	taaataataa	tgaccgaatg	60
caagagaaag	atgacgagaa	acaagatcaa	aacaatagaa	tgcagttgtc	tgataaagta	120
ctttcaaaaga	aagagaagt	cgtaaccgac	agtcaagaag	aaattaaaat	tgctgtatgaa	180
gtgaagaaat	cgacgaaaga	agaatctaa	caattgcttgc	aagtttgaa	aacaaaagaa	240
gagcaccaaa	aagagataca	atatgaaaatt	ttgcaaaaaaa	cgataccaac	atttgaacca	300
aaagagtcaa	tattgaaaaaa	attggaggat	atcaaaccgg	aacaagcgaa	gaagcagact	360
aagctattta	gaatatttga	accgagacag	ctaccaatttgc	atagagcgaa	tgtgaaaaaa	420
gagttgcgt	acagatggta	ttggaagctg	aagaaaagata	ctttaccaga	tgagatttat	480
gatgttagag	aatacttttgc	aaatttgcatt	gatcaggttgc	ttactgaaat	gccagatttat	540
ttactattaa	aagatatggc	agttgaaaat	aagaatttcga	gagatgccgg	taaagttgtt	600
gattctgaaa	cagcaagtat	ctgtgtatgt	atatttcaag	atgagggaaac	agaagggtgca	660
gtgagacgat	tcattgcgga	gatgagacag	cgcgtacaag	ctgacagaaa	cgttgtcaat	720
tacccatcaa	tattgcattcc	aatagatttgc	gcttttaatgc	agtatttttgc	caacacaccaa	780
ttagttgaac	cattgaataa	tgtatataata	ttcaatttac	ttcctgaaag	gataaggaat	840
gacgttaact	atatacttaa	tatggacaga	aatctgcccatt	caacagctag	atataataaga	900
cctaatttac	tacaagacag	actgaatttgc	catgacaatttgc	ttgaatccctt	gtgggataca	960
ataacaactt	caaactat	tctggcaaga	tcggtagtac	cagatttaaa	ggaatttagtt	1020
tcaaccgaag	cgcaatttca	aaaaatgtca	caagacttgc	aactagaagc	attaacaata	1080
cagtcaaaa	cgcagtttttgc	aacaggtata	aactcacaag	cagcaatgat	ctgtttcaaa	1140
actctgatttgc	cagcaatgttgc	aagtcaacga	accatgttgc	ttgatttcgt	gactacaaat	1200
tatatgtcat	taatttcagg	catgtggta	ctaactgttag	tgccaaatgat	catgttcata	1260
aggaatcat	tggttgcatt	tcaactggct	atagtgaata	caataatata	tccagcgttc	1320
ggaatgcaac	gaatgcatta	tagaaacggat	gaccacaaa	gaccatttca	gatagcagaa	1380
caacaaatac	aaaatttca	agtagcgat	tggctgcatttgc	ttgtcaataa	caatcaatttgc	1440
agacaagtag	ttattgtatgg	tgtatttgcatt	caggtgctgat	atgacaatata	tagaaatggat	1500
catgtcatta	atcaatttgcatt	gaaagcttgc	atgcaactat	cacgacaaaca	gtttccaaca	1560
atgcctgttgc	attataagag	gtcaatccat	cgttgcattat	tattgtatc	aaataggcttgc	1620
ggtaatttgcatt	tttgcatttgc	taggttata	gttacaacttgc	acgaaacacttgc	aatggcatgt	1680
gttacgtat	atatgcaaca	tgttcagact	ttgacaacag	aaaaatttaca	gttaacttca	1740
gtcacatgttgc	tgtgtatgttgc	tattggaaat	gcaaccgttgc	tacccagccc	gcagacatttgc	1800
tttcaacttgc	ataatgttata	tgttataatttgc	cattcaatttgc	ataatgaaag	aattaatgttgc	1860
gcagtggccat	taataacttgc	agctaata	ctaaatttgc	atcagaaaaa	gatgaaggca	1920
atagtgttgcatt	attttttgcatt	aagatttgcatt	attttgcatt	tagctagat	tccagatgt	1980
caaatgtata	gattaaggga	tagactacga	ctatttgcacat	tagaagtaag	acgattggat	2040
attttttgcatt	tgtatgttgcatt	gaaatgttgcatt	atcaaccat	atcaccat	agcgctagttgc	2100
caagggttta	ttattgcgttgc	ccgcgatatgc	caattggaaa	gagacgaaat	gtatggctac	2160
gtgaatata	ctagaaatttgc	agatgggttc	cagcaaataa	acctagaaga	attgatgaga	2220
acaggcgatt	atgcacaat	aactaacatg	ctcttgcata	atcaaccat	agcgctagttgc	2280
ggagctttc	catttggta	agactcgtca	gtcatttccat	tcattgcata	cgttgacgct	2340

```

acagttttg cccaaatagt taaattacgg aaagttgata ccttgcacc aatattgtat 2400
aaaataaatt cagattcgaa tgactttac ctgttgcca actatgattt ggtgcctact 2460
tcaaccacaa aagtatataa gcaagttcca cagcaattt atttcagaaa ttcgatgcat 2520
atgttaacat caaatcttac tttcactgtt tactctgatc tgcttgcatt cgtatcggcc 2580
gatacagtag aacctataaa tgcagttgca tttgataata tgcgcatcat gaacgagttg 2640
taa

```

```
<210> 5
<211> 2643
<212> DNA
<213> Artificial sequence
```

<220>
<223> VP2 strain RF open reading frame, modified sequence

taa

2643

```
<210> 6
<211> 2797
<212> DNA
<213> Artificial sequence
```

<220>
<223> VP2 strain RF open reading frame,
and with signal peptide

<400> 6	
gcgcgcggat cccaaggccc aactccccga accaactcagg gtccctgtgga cagctcacct	60
agccgccatg gctccaggct cccggacgtc cctgctcctg gctttgccc tgctctgcct	120
gccctggctt caggaggctg gcgcgcgtat ggcttacagg aaacgtggag cccgcgcgtga	180
ggctaataatt aataataatg acagaatgca ggagaaaatg gacgagaaac aggatcagaa	240
caatagaatg cagctgtctg ataaagtgc ttcaaagaaa gagaagtcg tcaccgacag	300
tcaggaagaa attaaaattt ctgatgaagt gaagaaatcc acgaaaagaag aatctaaaca	360
gctccctgaa gttctgaaaa caaaagaaga gcaccagaaa gagatccagt atgaaattct	420
ccagaaaacg attccaaat ttgaaccaa agagtcaatc ctgaaaaaac tcgaggatata	480
caaaccgaa caggcgaaga agcagactaa gctgtttaga atttttgaac ccagacagct	540
cccaatctat agagctaatg gcgaaaaaga gctgcgtaac agatggatt ggaagctgaa	600
gaaagatact ctgccagatg gagattatga tggtagagaa tactttctga atctctatga	660
tcaggttctt actgaaatgc cagattatct cctcctgaaa gatatggcag ttgaaaataa	720
gaatagcaga gatgccgaa aagtttgta ttctgaaaca gcaagtatct gtatgctat	780
ctttcaagat gaggaaacag aaggcgcagt gagaagattc attgcccaga tgagacagcg	840
cgtgcaggct gacagaaacg ttgtcaatta cccatcaatt ctgcattccaa tcgattacgc	900
tttaatgag tattttctcc agcaccagct cggtgaacca ctgaaataatg atattatctt	960
caattacatt cctgaaagga ttaggaatga cgttaactat atcctaataa tggacagaaa	1020
tctgccatca acagctagat atattagacc taatctgtc caggacagac tgaatctcca	1080
tgacaatttt gaatccctgt gggatacaat cacaactca aactatattc tggcaagatc	1140
cgtcgtgcca gatctcaagg aactggttc aaccgaagct cagattcaga aaatgtcaca	1200
ggacctccag ctgcgaagcac tcacaattca gtcagagacg cagtttctga caggaatcaa	1260
ctcacaggca gcaaatactgact gtttcaaaaact tctgatttgc gcaatgtca gtcagagaaac	1320
catgaggcctt gatttcgtga ctacaaaatta tatgtcactg atttcaggca tggggctcct	1380
gactgtcgtg ccaaataatgaca tgttcatttag ggaatcactg gttgcattgtc agctggctat	1440
cgtgaataca attatctatc cagcgttccg aatgcagaga atgcattata gaaacggaga	1500
cccacagaca ccatttcaga ttgcagaaca gcagatccag aattttcagg tggctaatttgc	1560
gctgcatttt gtcaacaaca atcagtttag acaggtcgat attgatggcg tgctcaatca	1620
ggtgctgaat gacaatatta gaaatggaca tgtcattaaat cagctgtatgg aagctctgtat	1680
gcagctctca agacagcagt ttccaacaat gcctgtttag tataagaggt caatccagcg	1740
tggaatttctc ctccgttcaa ataggcttgg acagctgtt gatctcactc ggctgctcgc	1800
ttacaactac gaaacactca tggcatgtgt tacgatgaat atgcagcatg tttagactct	1860
gacaacagaa aaactgcagc tcacttcaat cacatccctc tggatgttta ttggaaatgc	1920
aaccgttatac cccagcccccc agacactgtt tcactattac aatgttataatg ttaattttca	1980
ttcaaattat aatgaaagaa ttaatgtatc agtggccatt atcactgcag ctaatagact	2040
aatctgtat cagaaaaaga tgaaggcaat tggtaagat ttctcaaaa gactgcataat	2100
tttcgatgtc gctagagttc cagatgtatc gatgtataga ctcaggata gactcagact	2160
gctcccagtg gaagtcaagaa gactggatat tttaatctc atcctgtatga acatggatca	2220
gattgaacgc gcatcagata aaatttgcgc gggcgattt attgcttacc gcgatatgc	2280
gctggaaaaga gacgaaatgt atggctacgt gaatatcgt agaaatctgg atggattcca	2340
gcagattaac ctgcagaagac tcattgagaac aggcgattat gcacagatca ctaacatgct	2400
cctgaataat cagccagtgg cgctgggttgc agcttccca ttgttacag acagctcagt	2460
catttccttc atcgtcaagc ttgacgtac agtttttgc cagattgtta aactcaggaa	2520
agttgataacc ctgaaaaccaa tccttataa attaatca gatagcaatg acttttacct	2580
cgttgccaaat tatgattggg tgcctacttc aaccacaaaaa gtctataagc aggttccaca	2640
gcagtttgcatttca ccatgcataat gctgacatca aatcttactt tcactgttta	2700
ctcagatctg ctgcattcg tgagcgcga tacagtgcgaa cctatcaatg cagttgcatt	2760
tgataatatg cgcatcatga acgagctgtatc agcgcgc	2797

<210> 7
<211> 783
<212> DNA
<213> Porcine rotavirus

<220>
<223> VP4 gene for capsid protein, partial cds

<400> 7

aatctttctg acgaaaattca agatattgga tcagctaagt	60
cctggtccat tcgcacaaac aggttacgca ccagttatt	120
gactccacaa ctgtcaagcc attatttagat ggtccggacc	180
ccaacaagct attggatatt acttgccca actgttagagg	240
aacaatatcg atagatggtt ggctactata ctaattgaac	300
agaatataca atcctttgg ttagcaagaa actttatcg	360
caatggacgt tcatttgtt aagtaaaact acactagctg	420
ctattgctct ctacaccaa ctcatacgtc gtaatggat	480
tataatggaa ccacccaaa cgccagcaaca ggatactatt	540
gttaaatatga catcatttg tgactttac attataccaa	600
actgagtata tcaatcacgg attacctccc atacaaaata	660
tccttatcggtt ctagagagat agtgcacaca agagctcaag	720
tcaaaaaactt cacttggaa agaaatgcaa tataacagag	780
acataaccat aagattcaat ttt	783

<210> 8
<211> 799
<212> DNA
<213> Human rotavirus

<220>
<223> P1B VP4 gene, partial cds

<400> 8

ccgattcata ttcatgtatc ttgcattatc aaatagaaca gattggatca	60
aaaatgtaac gataaatcca ggtccatttg cacagactag atatgcctca	120
gacatggggat gattaatgtatc tcaactatag tggaccgtt tttagatgg	180
ccactacgtt caaaccacct aatgattttt ggctacttat tagctcaat	240
tagtttatga aagtacaaat aatagtactt tttggacagc agttatcg	300
atgttagtca aacaaataga caatataattt tattttgtaa aataaagcag	360
aaaataattc agataaatgg aaatttttcg aaatgttcaa aggttagt	420
tttctaatac acgaactcta acttctaata atagactcg	480
gaaaagtatg gacatttcat ggtgaaacgc caagagccac tactgtat	540
cggtttaaa taatataatca attataattc attcagatgtt ttatatcatt	600
aagaatctaa atgtatgtatc tatattaaata atggtttgcc accaattcag	660
acgtagttcc attatctcta tcatccagat ctattcaata taggagagca	720
aagatattac aatttcaaaa acttcattat ggaaggaaat gcaatgtat	780
taataagatt taaatttgg	799

<210> 9
<211> 875
<212> DNA
<213> Human rotavirus

<220>
<223> P3 truncated VP4 protein gene, partial cds

<400> 9

tcgctcattt atagacagtt actatcaaac tcatatgtta caaacatctc	60
tgacgaaatt	

aatgaaattg	gaactaaaaa	agcaactaac	gttactgtta	atccagggcc	attcgaccaa	120
acgggatatg	cgcctgtcga	ctggggacat	ggtgaattgc	ctgactctac	attagtgc当地	180
ccaactctt	atggccata	ccaacccact	tcacttaatt	tgccagtcga	ttattggatg	240
ttaattgc当地	ctactagaga	agggaaagtt	gctgaaggta	cgaataactac	tgacagatgg	300
ttcgcttgc当地	tacttagttg	gccaaatgtg	caaaatacac	aaaggcaata	cgtatttagat	360
gggc当地aaatg	tccaattaca	tgtctcaa	gattcaagta	cttcgtggaa	atttatatta	420
ttcattaaat	tgacccccga	cggaacgtac	actcaatact	caaccttgc当地	aacaccgc当地	480
aagttatgc当地	cgtgaatgaa	aagagataac	agagtatact	ggtatcaagg	aacgacacccg	540
aacgc当地atcag	agagctt当地	cttgacaata	aacaatgaca	acagcaacgt	ttcaagtgac	600
gctgaattcc	atttgatacc	gcaatcgac	actgccc当地	gtacacaata	tataaacaat	660
ggttaccac	caattcagaa	tacaaggaat	attgtaccag	taaatattac	atctagacag	720
attaaagaca	taagagctca	gatgaatgaa	gacatagtga	tatcaaaaac	ttcgctatgg	780
aaagaaatgc	aatataatac	agatataatc	attagattt	aatttgctaa	ttcaataatc	840
aatcaggtg	ggcttaggtt	taaatggcc	gaaat			875

<210> 10
<211> 1194
<212> DNA
<213> rotavirus

<220>
<223> VP6 strain RF open reading frame

<400> 10						
atggatgtcc	tgtactcctt	gtcaaaaact	cttaaagatg	ctagagacaa	aattgtcgaa	60
ggcacattat	actccatgt	aagtgtatct	attcaacaat	ttaatcaa	ataattact	120
atgaatggaa	atgagttcca	aactggagga	attggtaatc	taccgattag	aaattggat	180
tttgattttg	gattacttgg	aacaactcta	ctaaatattag	atgctaacta	cgtcgaaacg	240
gccc当地caata	caattgatta	ttttgttagat	ttttagata	atgtatgtat	ggacgaaatg	300
gttagagaat	cacaagaaa	tggattgc当地	ccacaatcag	attcactt	aaagttatca	360
ggcattaaat	ttaaaaagaat	aaattttgc当地	aattcatacag	aatacataga	gaactggaaat	420
ttgcaaaata	gaagacaaag	aacggg	ttt acatttata	aaccaaacat	tttcccttat	480
tcagttcat	tcacgttggaa	cagatcacaa	ccggctcat	ataacttgat	gggtacgtat	540
tggctcaatg	cgggatcaga	aattcagg	gctggattcg	actactcat	tgc当地aaac	600
gccc当地gct	atacgcaaca	atttgc当地	attgtacagc	ttc当地agggt	gttgc当地aca	660
gctacaataa	ctctttacc	agatgc当地	agattttagt	ttccaagag	gattacttca	720
gctgacggag	cgactacat	gtacttcaat	ccagtgtt	tttagacaaa	taacgttggaa	780
ata	agatgtt	taactaacgg	gcagataata	aataacttacc	aagcaagatt	840
atagctagaa	attttgc当地	aatttagat	tcatttgc当地	tgatgc当地	acc	900
acaccagcgg	tagcgc当地	atttccaaat	gccc当地	ttgaacatca	cgcaacagta	960
ggactcacgc	tttagaattga	atctgc当地	tgtgaat	tacttgc当地	cgcaaggc当地	1020
acaatgttag	caa	atgtgac	atctgtt	caagaatac	cgatacc	1080
tttccaccag	gtatgaattt	gactgattt	atcacta	attcaccat	tagagaggat	1140
aacttgc当地	gtgtatttac	agtggcttcc	attagaagca	tgcttgc当地	atga	1194

<210> 11
<211> 1194
<212> DNA
<213> Artificial sequence

<220>
<223> VP6 strain RF open reading frame, modified sequence

<400> 11						
atggatgtcc	tgtactcctt	gtcaaaaact	cttaaagatg	ctagagacaa	aattgtcgaa	60
ggcacattat	actccaa	gtt	attcaacaat	ttaatcaa	ataattact	120
atgaatggaa	atgagttcca	aactggagga	attggtaatc	taccgattag	aaattggat	180
tttgattttg	gattacttgg	aacaactcta	ctaaatattag	atgctaacta	cgtcgaaacg	240
gccc当地caata	caattgatta	ttttgttagat	ttttagata	atgtatgtat	ggacgaaatg	300

gttagagaat cacaagaaaa tggaaattgca ccacaatcag attcacttat aaagttatca	360
ggcattaaat taaaagaat aaattttgc aattcatcag aatacataga gaactggaat	420
ttgcaaaata gaagacaaag aacgggttt acatttcata aaccaaacat ttcccttat	480
tcagttcat tcacgttcaa cagatcacag cccgctcatg ataacctgat gggtaacgatg	540
tggctcaatg cggtatcaga aattcaggc gctggattcg actactcatg tgcaataaac	600
gcgccagcta ataccaaca atttgagcat attgtacagc ttcaagggt gttgactaca	660
gctacaataa ctctttacc agatgcagaa agattttagt ttccaagagt gattactca	720
gctgacggag cgactacatg gtacttcaat ccagtattc tttagacaaa taacgttcaa	780
atagagttc tactaaacgg gcagataata aatacttacc aagcaagatt tggAACGATC	840
atagctagaa attttgatac aatttagattt tcatttcaat tgatgagacc accaaatatg	900
acaccagcgg tagcggcggtt atttccaaat ggcgcagccat ttgaacatca cgcaacagta	960
ggactcacgc tttagaatttga atctgcaggat tggatcgat tacttgcgaa cgcaagcgaa	1020
acaatgttag caaatgtgac atctgttaga caagaatacg cgataccatg tggaccaggat	1080
tttccaccag gtatgatttgc gactgatttgc atcactaact attcaccatc tagagaggat	1140
aacttgcagc gtgtatttac agtggcttcc attagaagca tgcttgtcaa atga	1194

<210> 12
<211> 1194
<212> DNA
<213> Artificial sequence

<220>
<223> VP6 strain RF open reading frame, modified sequence

<400> 12	
atggatgtcc tgtactcctt gtcaaaaact cttaaagatg ctagagacaa aattgtcgaa	60
ggcacattat actccatgt aagtgtatca attcaacaat ttaatcaaat gataattact	120
atgaatggaa atgagttcca aactggagga attggtaatc taccgattag aaatttggaaat	180
tttgcattttt gattacttgg aacaactcta ctaaattttag atgctaacta cgtcgaaacg	240
gcccgaata caattgatta tttttagat tttttagata atgtatgtat ggacgaaatg	300
gttagagaat cacaagaaaa tggaaattgca ccacaatcag attcacttat aaagttatca	360
ggcattaaat taaaagaat aaattttgc aacttgcattc aatacataga gaactggaat	420
ttgcaaaata gaagacaaag aacgggttt acatttcata aaccaaacat ttcccttat	480
tcagttcat tcacgttcaa cagatcacaa ccggctcatg ataacttgc gggtaacgatg	540
tggctcaatg cggtatcaga aattcaggc gctggattcg actactcatg tgcaataaac	600
gcgccagcta ataccaaca atttgagcat attgtacagc ttcaagggt gttgactaca	660
gctacaataa ctctttacc agatgcagaa agattttagt ttccaagagt gattactca	720
gctgacggag cgactacatg gtacttcaat ccagtattc tttagacaaa taacgttcaa	780
atagagttc tactaaacgg gcagataata aatacttacc aagcaagatt tggAACGATC	840
atagctagaa attttgatac aatttagattt tcatttcaat tgatgagacc accaaatatg	900
acaccagcgg tagcggcggtt atttccaaat ggcgcagccat ttgaacatca cgcaacagta	960
ggactcacgc tttagaatttga atctgcaggat tggatcgat tacttgcgaa cgcaagcgaa	1020
acaatgttag caaatgtgac atctgttaga caagaatacg cgataccatg tggaccaggat	1080
tttccaccag gtatgatttgc gactgatttgc atcactaact attcaccatc tagagaggat	1140
aacttgcagc gtgtatttac agtggcttcc attagaagca tgcttgtcaa atga	1194

<210> 13
<211> 1194
<212> DNA
<213> Artificial sequence

<220>
<223> VP6 strain RF open reading frame, modified sequence

<400> 13	
atggatgtcc tgtactcctt gtcaaaaact cttaaagatg ctagagacaa aattgtcgaa	60
ggcacattat actccatgt aagtgtatca attcaacaat ttaatcaaat gataattact	120
atgaatggaa atgagttcca aactggagga attggtaatc taccgattag aaatttggaaat	180
tttgcattttt gattacttgg aacaactcta ctaaattttag atgctaacta cgtcgaaacg	240

gcccgcata	caattgatta	ttttgttagat	ttttagata	atgtatgtat	ggacgaaatg	300
gttagagaat	cacaagaaa	tggaaattgca	ccacaatcag	attcacttat	aaagtttatca	360
ggcattaaat	ttaaaagaat	aaattttgcac	aattcatcag	aatacataga	gaactggaat	420
ttgcaaaata	gaagacaaag	aacgggttt	acatttcata	aaccaaacat	ttcccttat	480
tcagcttcat	tcacgttcaa	cagatcaca	ccggctcatg	ataacttgat	gggtacgatg	540
tggctcaatg	cgggatcaga	aattcaggc	gctggattcg	actactcatg	tgcaataaac	600
gcccgcata	atacgcaca	atttgagcat	attgtacagc	ttcgaagggt	gttgactaca	660
gctacaataa	ctctttacc	agatgcagaa	agattttagt	ttccaagagt	gattacttca	720
gctgacggag	cgactacatg	gtacttcaat	ccagtgattc	ttagaccaa	taacgttcaa	780
ataagtttc	tactaaacgg	gcagataata	aatacttacc	aagcaagatt	tggaacgatc	840
atagctagaa	attttgatac	aatttagatttgc	tcatttcagt	tgatgagacc	accaaataatg	900
acaccagcgg	tagcggcg	ttttccaaat	gcccgcata	ttgaacatca	cgcaacagta	960
ggactcacgc	tttagaatttga	atctgcagtt	tgtgaatcag	tacttgcg	cgcaagcgaa	1020
acaatgctag	cacaagtgcac	atctgtttaga	caagaataacg	cgataccagt	tggaccagtt	1080
tttccaccag	gtatgaatttgc	gactgatttgc	atcactaact	attcaccatc	tagagaggat	1140
aacttgcagc	gtgtatttac	agtggcttcc	attagaagca	tgcttgtcaa	atga	1194

<210> 14
<211> 1194
<212> DNA
<213> Artificial sequence

<220>
<223> VP6 strain RF open reading frame, modified sequence

<400> 14						
atggatgtcc	tgtactcctt	gtcaaaaact	cttaaagatg	ctagagacaa	aattgtcgaa	60
ggcacattat	actcccaagt	cagtgatcta	attcaacaat	ttaatcaa	ataattact	120
atgaatggaa	atgaggcca	aactggagga	atttggata	taccgattt	aaattggaa	180
tttgattttt	gattacttgg	aacaactcta	ctaaattt	atgctaacta	cgtcgaaacg	240
gcccgcata	caattgatta	ttttgttagat	ttttagata	atgtatgtat	ggacgaaatg	300
gttagagaat	cacaagaaa	tggaaattgca	ccacaatcag	attcacttat	aaagtttatca	360
ggcattaaat	ttaaaagaat	aaattttgcac	cagtcatcag	aatacataga	gaactggaat	420
ttgcaaaata	gaagacaaag	aacgggtttt	acatttcata	aaccaaacat	ttcccttat	480
tcagcttcat	tcacgttcaa	cagatcacag	ccgcctcatg	ataacctgtat	gggtacgatg	540
tggctcaatg	cgggatcaga	aattcaggc	gctggattcg	actactcatg	tgcaataaac	600
gcccgcata	atacgcaca	atttgagcat	atttgcac	ttcgaagggt	gttgactaca	660
gctacaataa	ctctttacc	agatgcagaa	agattttagt	ttccaagagt	gattacttca	720
gctgacggag	cgactacatg	gtacttcaat	ccagtgattc	ttagaccaa	taacgttcaa	780
ataagtttc	tactaaacgg	gcagataata	aatacttacc	aagcaagatt	tggaacgatc	840
atagctagaa	attttgatac	aatttagatttgc	tcatttcagt	tgatgagacc	accaaataatg	900
acaccagcgg	tagcggcg	ttttccaaat	gcccgcata	ttgaacatca	cgcaacagta	960
ggactcacgc	tttagaatttga	atctgcagtt	tgtgaatcag	tacttgcg	cgcaagcgaa	1020
acaatgctag	cacaagtgcac	atctgtttaga	caagaataacg	cgataccagt	tggaccagtt	1080
tttccaccag	gtatgcagtt	gactgatttgc	atcactaact	attcaccatc	tagagaggat	1140
aacttgcagc	gtgtatttac	agtggcttcc	attagaagca	tgcttgtcaa	atga	1194

<210> 15
<211> 1194
<212> DNA
<213> Artificial sequence

<220>
<223> VP6 strain RF open reading frame, modified sequence

<400> 15						
atggatgtcc	tgtactcctt	gtcaaaaact	cttaaagatg	ctagagacaa	aattgtcgaa	60
ggcacattat	actcccaagt	cagtgatcta	attcaacaat	ttaatcaa	ataattact	120

atgaatggaa atgagttcca aactggagga attggtaatc taccgattag aaattggaaat	180
tttgattttg gattacttgg aacaactcta ctaaatttag atgctaacta cgtcgaaacg	240
gccgcata caattgatta tttttagat ttttagata atgtatgtat ggacgaaatg	300
gttagagaat cacaaggaaa tggatttgc ccacaatcatg attcacttat aaagttatca	360
ggcattaaat taaaagaat aaattttgac cagtcatcatg aatacataga gaactggaaat	420
ttgcaaaata gaagacaaag aacgggtttt acatttcata aaccaaacat ttcccttat	480
tca gcttcat tcacgttcaa cagatcacaa ccggctcatg ataacttgat gggtacgatg	540
tggctcaatg cgggatcaga aattcaggc gctggattcg actactcatg tgcaataaac	600
gcgcgcata atacgcaaca atttgagcat attgtacagc ttcaagggtt gttgactaca	660
gctacaataa ctctttacc agatgcagaa agattttagtt ttccaagagt gattacttca	720
gctgacggag cgactacatg gtacttcat ccagtgattc ttagacaaa taacgttga	780
atagagttc tactaaacgg gcagataata aatacttacc aagcaagatt tggAACGATC	840
atagctagaa attttgatac aatttagattt tcatttcagt tgatgagacc accaaatatg	900
acaccagcgg tagcgcgtt atttccaaat ggcgcagccat ttgaacatca cgcaacagta	960
ggactcacgc tttagaatttga atctgcagg tttgaaatcg tacttgcga cgcaaggcga	1020
acaatgctag cacaagtgc acatgtttaga caagaatacg cgataccgt tggaccagg	1080
tttccaccag gtatgcagg gactgatttgc atcactaact attcaccatc tagagaggat	1140
aacttgcagg gtgtatttac agtggcttcc attagaagca tgcttgtcaa atga	1194

<210> 16
<211> 1348
<212> DNA
<213> Artificial sequence

<220>
<223> VP6 strain RF open reading frame, modified sequence,
with signal peptide

<400> 16	
gcgcgcggat cccaggcccc aactccccga accactcagg gtcctgttga cagctcacct	60
agccgcctat gctccaggct cccggacgtc cctgctcctg gcttttgcct tgctctgcct	120
gccctggctt caggaggctg ggcggctgtat ggtatgttgc tactccctct caaaaactct	180
taaagatgtat agagacaaaa ttgttcaagg cacatgtac tcccaagtca gtatctcat	240
tcagcgttt aatcagatga ttattactat gaatggcaat gagttccaga ctggaggcat	300
tggcaatctc cccattagaa atttggaaattt tgattttggaa ctcccttggaa caactctgt	360
caatctggat gctaactacg tcgaaacggc ccgcataataca attgattttt ttgtcgattt	420
tgtggataat gtctgtatgg acgaaatgtt tagagaatca cagagaaatg gcattgcacc	480
acagtcaaatc tcaactatca agctctcagg cattaaattt aaacgcattt attttgacca	540
gtcatcagaa tacatcgaga actggaaatct gcaaaataga agacagagaa cgggattcac	600
atttcataaa ccaaaccattt tcccttattt cgcctccctt acgctccagg gtcacagcc	660
cgcctcatgtat aacctgatgg gcacgatgtg gctcaatgtt ggctcagaaa tccaggcgc	720
tggattcgc tactcatgtt caattaaacgc cccagctaat acgcagcagg ttgagcatat	780
tgtcagctt agaagggtgc tcaactacacg tacaatactt cttcttgcag atgcagaaag	840
attcagttt cccagaggta ttacttcagg tgacggact actacatggt acttcaatcc	900
agtgattttt agaccaaata acgttgaat tgagtttctg ctcaacggac agatcattaa	960
tacttaccag gcaagatttgc gacgatcat cgcttagaaat tttgatacaa ttagactgtc	1020
atttcagctc atgagaccac caaacatgac accagccgtc gctgcctct ttccaaatgc	1080
tca gccattt gacatcactg caacagtggg actcactgtt agaatttgaat cagcagtg	1140
tgaatcgtc cttggccacg caagcgaaac aatgttggca caagtgcacat ctgttagaca	1200
ggaatacgcg attccagttt gaccaggaaa tccaccagga atgcagtgga ctgatctgt	1260
cactaactat tcaccatcta gagaggataa cctccagccg gtgttacag tggcatccat	1320
tcgcaggatg cttgtcaat gagcgcgc	1348

<210> 17
<211> 1061
<212> DNA
<213> Human rotavirus

<220>

<223> G9 strain 97CM113 outer capsid protein (VP7)

<400> 17

ggcttaaaa	gagagaattt	ccgtctggct	agcggttatt	tccttttaat	gtatggtatt	60
gaatatacca	caattctaac	ctttctgata	tcaatagttt	tattgaacta	tatattaaaa	120
tcactaacta	gtgcgatgga	cttcataatt	tatagatttc	ttttacttat	tgttattgca	180
tcacctttg	ttaaaacaca	aaattatgga	attaatttc	cgatcactgg	ctccatggat	240
acagcatatg	caaattcatac	acagcaagaa	acattttga	cttcaacgct	atgcttatat	300
tatcctacag	aagcgtcaac	tcaaattgga	gatacggaa	ggaaggatac	tctgtcccaa	360
ttattcttga	ctaaagggtg	gccaaactgga	tcagtctatt	ttaaagaata	caccgatatc	420
gcttcattct	caatttgatcc	gcaactttat	tgtgattata	atgttgtact	gatgaagtat	480
gattcaacgt	tagagctaga	tatgtctgaa	ttagctgatt	taattctaaa	tgaatgggta	540
tgtAACCCAA	tggatataac	attatattat	tatcagcaaa	cagatgaagc	gaataaatgg	600
atatcgatgg	gacagtcttg	taccataaaa	gtatgtccat	tgaataacgca	gacttttagga	660
atagggtgta	ttaccacaaa	tacagcgaca	tttgaagagg	tggctacaag	tgaaaaaatta	720
gtaataaccg	atgttgttga	tggtgtgaac	cataaaacttg	atgtgactac	aaataacctgt	780
acaatttagga	attgtaaagaa	gttggggacca	agagaaaatg	tagcgattat	acaagtcgg	840
ggctcagatg	tgttagatat	tacagcggt	ccaaactactg	caccacaaac	tgaacgtatg	900
atgcgagtaa	attggaagaa	atggtggcaa	gtttctata	cagtagtaga	ttatattaaat	960
cagattgtgc	aagttatgtc	caaaagatca	cggtcattaa	attcagcagc	tttttactat	1020
agggtttgat	atatctttaga	tttagaattgt	atgatgtgac	c		1061

<210> 18

<211> 1062

<212> DNA

<213> Human rotavirus

<220>

<223> G9 strain 02-22 capsid protein VP7 gene

<400> 18

ggcttaaaa	gagagaattt	ccgtctggct	agcggttagc	tccttttaat	gtatggtatt	60
gaatatacca	caattctaac	ctttctgata	tcaatagttt	tattgaacta	tatattaaaa	120
tcactaacta	gtgcgatgga	ctttataatt	tatagatttc	ttttacttat	tgttattgca	180
tcatctttg	ttaaaacaca	aaattatgga	attaatttc	cgatcactgg	ctccatggat	240
acagcatatg	caaattcatac	acagcaagaa	acattttga	cttcaacgct	atgcttatat	300
tatcctacag	aagcatcaac	tcaaattgga	gatacggaa	ggaaggatac	tctgtcccaa	360
ttattcttga	ctaaagggtg	gccaaactgg	tcagtctatt	ttaaagaata	cactgatatc	420
gcttcattct	caatttgatcc	acaactttat	tgtgattata	atgttgtact	gatgaagtat	480
gattcaacgt	tagagctaga	tatgtctgaa	ttagctgatt	taattctaaa	tgaatgggta	540
tgtAACCCAA	tggatataac	attatattat	tatcagcaaa	cagatgaagc	gaataaatgg	600
atatcgatgg	gacagtcttg	taccataaaa	gtatgtccat	tgaataacgca	gacttttagga	660
atagggtgta	ttaccacaaa	tacagcgaca	tttgaagagg	tggctacaag	tgaaaaaatta	720
gtaataaccg	atgttgttga	tggtgtgaac	cataaaacttg	atgtgactac	aaataacctgt	780
acaatttagga	attgtaaagaa	gttggggacca	agagaaaatg	tagcgattat	acaagtcgg	840
ggctcagatg	tgttagatat	tacagcggt	ccaaactactg	caccacaaac	tgaacgtatg	900
atgcgagtaa	attggaagaa	atggtggcaa	gtttctata	cagtagtaga	ttatattaaat	960
cagattgtgc	aagttatgtc	caaaagatca	cggtcattaa	attcagcagc	tttttactat	1020
agggtttgat	atatctttaga	tttagaattgt	atgatgtgac	ca		1062

<210> 19

<211> 1062

<212> DNA

<213> Human rotavirus

<220>

<223> G3 strain MaCH09004 outer capsid protein (VP7) gene,
complete cds

```

<400> 19
ggctttaaaa gagagaattt ccgtctggct agcggttagc tccttttaat gtatggtatt 60
gaätatacca cagttttaac cttttgata tcagttatat tggtaatta cgtactcaaa 120
tccttaacta gaataatgga ctttattatt tacagatttcc tttaatttat agttatatta 180
tcaccactcc ttaatgcaca aaattatgga ataaatcttc cgattactgg ctcaatggac 240
acaccatata cgaactcaac gcgagaggaa gtattcccaa cttcgacttt atgtttgtat 300
tacccaactg aagcagcaac agaaaataaat gataattcat ggaaggataac actttctcag 360
ctatTTTAA tcaaaggatg gccaacagga tctatttatt taaagatta tactgatatt 420
gcctcgTTT cagtcgatcc acaactgtat tgtgattata atttggatt aatgaaatat 480
gacgctacac tgcaactgga catgtccgaa ctagcagatt tggtaacttta tgagtggta 540
tgtaatccta tggatattac ttgttattat tatcaacaaa ctgatgaggc aaataaatgg 600
atttcaatgg gatcatctt tactataaag gtatgtccac taaatacgca aacatttagga 660
attgggtgtc taacaactga tacaaacacg tttgaagaag ttgcaacagc tgaaaaattta 720
gtgattactg acgttgtaga tggagtcaat cataaaattga acgtgacaac aaacacttgt 780
acgattcgaa attgtaaagaa attaggacca agggaaaacg tagcagttat acaggttaggt 840
ggcccagatg tgcttgacat aacagctgat ccaacgacaa tgccacaaaac agaaaagaatg 900
atgcgagtga attggaagaa atgggtggcaa gtgtttata caatagttga ctacgtgaat 960
caaattgtgc aagcaatgtc caaaagatcg agatcataa attctgctgc attttactac 1020
aqaqtataqa tataqcttaq attagaatttgc tatgtatgtga cc 1062

```

<210> 20
<211> 981
<212> DNA
<213> Human rotavirus

<220>
<223> G12 VP7 gene for capsid protein, complete cds

<400> 20	60
atgtatggta ttgaatatac cacaattcta accttttga tatcaattgt tctattaaat	120
tatataattaa aatcaataac taatataatg gactttatca tatatcggtt tttactaata	180
gttgggtca tgctgccatt tattaaagct caaaaattatg gaataaatct tccaataaca	240
ggttctatgg ataccgcata tacaaactcc acacaacaag agaattttat gacttccact	300
ttatgcttat attatccaag ttcatgtcactg actgaaataa ctgaccccga ttggacgaac	360
acactgtcac aactttcat gactaaagga tggccgacaa attccgtcta cttcaagagt	420
tatgctgata tagcgtcctt ctctgttagat ccgcagttat attgtgatta caatattgtg	480
tttagtacagt accaaaattc attagcgtt gatgtctcag aacttgctga tttaaattta	540
aatgaatggt tatgtaatcc gatggacgta acgttgact attatcaaca aacagatgaa	600
gcaataaaat ggatatcaat gggagaatca tgtacggta aagtatgtcc cttaaatacg	660
caaactttag gaattggatg tacacacaacc gacgtcacaa catttgaaga ggtagcaaac	720
gcggaaaaat tagtaataac tgacgtcggt gatggagtc atcacaagat taatattaca	780
atgaatacat gtactatacg gaattgcaaa aagtttaggac cgagggaaaa tgttagcaatt	840
atacaagtag gtggttctga cgtcatagac ataacagcag atccaacaac gatcccacaa	900
actgaaagaa tgatgcgaat aaattggaaa aaatggtggc aggtgttttta taccgttagta	960
gattacataa atcaaatagt tcaggtaatg tccaaacgat caagatcact aaattcagct	981
gcttttact acagaattta g	

```
<210> 21
<211> 1062
<212> DNA
<213> Human rotavirus
```

<220>
<223> G3 strain MaCH09404 outer capsid protein (VP7) gene,
complete cds

<400> 21 ggcttaaaaa gagagaatt ccgtctggct agcggttagc tccttttaat gtatggtatt 60

gaatatacc a cagtttaac ct tttgata tc agttatat t gttgaatta cgtactcaaa
 tccttaacta gaataatgga ct ttatttt tacagatttc tttaattat agttatatta
 tcaccactcc ttaatgcaca aaattatgga ataaatcttc cgattactgg ctcaatggac
 acaccatata cgaactcaac gcgagaggaa gtattcctaa ct tcgacttt atg tttgtat
 tacc caactg a a g c a c a c a g a a a t a a a t g a t t c a t g a a g a t a c
 ctat tttaa tcaaaggatg gccaacagga tctatttatt ttaaagatta tactgatatt
 gcctcg tttt cagtcgatcc acaactgtat t g t g a t t a a t t g g t a t t a a t t
 gacgctacac tgcaactgga catgtccgaa ctagcagatt tg t a c t t a a t g a g g t t a
 t g t a a t c t a t g g a t t a t t a t t a t t a t t a t t a t t a t t a t t a t t
 atttcaatgg gatcatctt g tactataaag gtatgtccac taaatacgca aacatttagga
 attgggtgtc taacaactga taca aacacg tttgaagaag ttgcaacacg t g a a a a a t t a
 gtgattactg acgtt g t a g a t g g a t t a c t g a a c a c a c a a a c a c t t g t
 acgattagaa attgtaagaa attaggacca agggaaaacg tagcagttat acaggttagt
 ggcccagatg tgcttgacat aacagctgat ccaacgacaa tgccacaaac agaaagaatg
 atgcgagtga attggaagaa atgg tggca a g t g t t a t a c a t a g t g a a t g a a t g
 caaattgtgc a a g c a a t g t c c a a a a g a t c g a g t c a t t a a t t c t g t g a a t
 agagtataga t a t a g c t t a g a t t a g a a t t g a t g t g a a t t c t g t g a a t
 ag a g t a t a g a t a g a t a g a t a g a t a g a t a g a t a g a t a g a t a g a t a g a t
 120
 180
 240
 300
 360
 420
 480
 540
 600
 660
 720
 780
 840
 900
 960
 1020
 1062

<210> 22
 <211> 7
 <212> PRT
 <213> Artificial sequence

<220>
 <223> HIV epitope

<400> 22

Arg Thr Pro Lys Ile Gln Val
1 5

<210> 23
 <211> 6
 <212> PRT
 <213> Artificial sequence

<220>
 <223> HIV epitope

<400> 23

Glu Leu Asp Lys Trp Ala
1 5